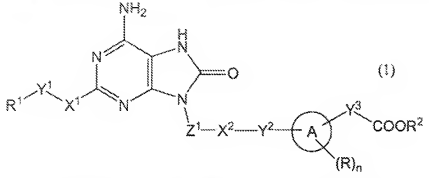
AMENDMENTS TO THE CLAIMS

1. (original) An 8-oxoadenine compound shown by the formula (1):



wherein ring A represents a 6-10 membered aromatic carbocyclic ring or a 5-10 membered heteroaromatic ring;

R represents a halogen atom, an alkyl group, a hydroxyalkyl group, a haloalkyl group, an alkoxy group, a hydroxyalkoxy group, a haloalkoxy group, amino group, an alkylamino group, a dialkylamino group, or a cyclic amino group;

n represents an integer of 0-2, and when n is 2, the Rs may be the same or different;

Z^1 represents a substituted or unsubstituted alkylene group or a substituted or unsubstituted cycloalkylene group;

X^2 represents oxygen atom, sulfur atom, SO_2, NR^5, CO, $CONR^5$, NR^5CO, SO_2NR^5, NR^5SO_2, NR^5CONR^6 or NR^5CSNR^6 (in which R^5 and R^6 are each independently hydrogen atom, a substituted or unsubstituted alkyl group, and a substituted or unsubstituted cycloalkyl group);

Y^1, Y^2 and Y^3 represent each independently a single bond or an alkylene group;

X^1 represents oxygen atom, sulfur atom, SO_2, NR^4 (wherein R^4 is hydrogen atom or an alkyl group) or a single bond;

R^2 represents hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkenyl group, a substituted or unsubstituted alkynyl group or a substituted or unsubstituted cycloalkyl group; and

R^1 represents hydrogen atom, hydroxy group, an alkoxy group, an alkoxycarbonyl group, a haloalkyl group, a haloalkoxy group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group or a substituted or unsubstituted cycloalkyl group,
or its pharmaceutically acceptable salt.

2. (previously presented) The 8-oxoadenine compound according to claim 1, wherein ring A represents a 6-10 membered aromatic carbocyclic ring, or a 5-10 membered heteroaromatic ring containing 1-4 hetero atoms selected from 0-4 nitrogen atoms, 0-2 oxygen atoms and 0-2 sulfur atoms;
R represents a halogen atom, an alkyl group of 1-6 carbons, a hydroxyalkyl group of 1-6 carbons, a haloalkyl group of 1-6 carbons, an alkoxy group of 1-6 carbons, a hydroxyalkoxy group of 1-6 carbons, a haloalkoxy group of 1-6 carbons, amino group, an alkylamino group of 1-6 carbons, a dialkylamino group in which each alkyl moiety has 1-6 carbons, and a cyclic amino group;
n is an integer of 0-2, and when n is 2, Rs may be the same or different;
Z^1 represents an alkylene group of 1-6 carbons or a cycloalkylene group of 3-8 carbons, which is optionally substituted by hydroxy group;
X^2 represents oxygen atom, sulfur atom, SO_2, NR^5, CO, $CONR^5$, NR^5CO, SO_2NR^5, NR^5SO_2, NR^5CONR^6 or NR^5CSNR^6 (in which R^5 and R^6 are independently hydrogen atom, a substituted or unsubstituted alkyl group of 1-6 carbons, and a substituted or unsubstituted cycloalkyl group of 3-8 carbons, wherein the substituents of the alkyl group or cycloalkyl group are selected from a halogen atom, hydroxy group, an alkoxy group of 1-6 carbons, carboxy group, an alkoxycarbonyl group of 2-5 carbons, carbamoyl group, amino group, an alkylamino group of 1-6 carbons, an dialkylamino group in which each alkyl moiety has 1-6 carbons, a cyclic amino group, carboxy group and tetrazolyl group which may be substituted by an alkyl group of 1-6 carbons);
Y^1, Y^2 and Y^3 represent each independently a single bond or an alkylene group of 1-6 carbons;
X^1 represents oxygen atom, sulfur atom, SO_2, NR^4 (wherein R^4 represents hydrogen atom or an alkyl group) or a single bond;

R^2 represents a substituted or unsubstituted alkyl group of 1-6 carbons, a substituted or unsubstituted alkenyl group of 2-6 carbons, a substituted or unsubstituted alkynyl group of 2-6 carbons or a substituted or unsubstituted cycloalkyl group of 3-8 carbons (wherein the substituent in the alkyl group, alkenyl group and alkynyl group is selected from a halogen atom, hydroxy group, an alkoxy group of 1-6 carbons, an acyloxy group of 2-10 carbons, amino group, an alkylamino group of 1-6 carbons, a dialklylamino group in which the each alkyl moiety has 1-6 carbons, and a cyclic amino group); and

R^1 represents hydrogen atom, hydroxy group, an alkoxy group of 1-6 carbons, an alkoxycarbonyl group of 2-5 carbons, a haloalkyl group of 1-6 carbons, a haloalkoxy group of 1-6 carbons. a substituted or unsubstituted aryl group of 6-10 carbons, a substituted or unsubstituted 5-10 membered heteroaryl group containing 1-4 hetero atoms selected from 0-4 nitrogen atoms, 0-2 oxygen atoms and 0-2 sulfur atoms, or a substituted or unsubstituted cycloalkyl group of 3-8 carbons;

and the said substituent in the aryl group, the heteroaryl group and the cycloalkyl group is selected from a halogen atom, hydroxy group, an alkyl group of 1-6 carbons, a haloalkyl group of 1-6 carbons, an alkoxy group of 1-6 carbons, a haloalkoxy group of 1-6 carbons, an alkylcarbonyl group of 2-5 carbons, amino group, an alkylamino group of 1-6 carbons and a dialkylamino group (wherein the each alkyl group has 1-6 carbons),

and the said cyclic amino group represents a 4-7 membered saturated cyclic amino group containing 1-2 hetero atoms selected from 1-2 nitrogen atoms, 0-1 oxygen atom and 0-1 sulfur atom, which may be substituted with a halogen atom, hydroxy group, oxo group, an alkyl group of 1-6 carbons, an alkoxy group of 1-6 carbons, an alkylcarbonyl group of 2-5 carbons or an alkoxycarbonyl group of 2-5 carbons,

or its pharmaceutically acceptable salt.

3. (previously presented) The 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 1 or 2, wherein X^2 is oxygen atom, sulfur atom, NR^5, SO_2, NR^5SO_2 or NR^5CONR^6.

4. (previously presented) The 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 1, wherein Y^3 is a single bond, methylene or ethylene.

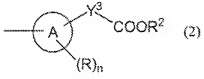
5. (previously presented) The 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 1, wherein Z^1 is a straight chained alkyelne group of 1-6 carbons which may be substituted with hydroxy group.

6. (previously presented) The 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 1, wherein X^1 is oxygen atom or sulfur atom.

7. (previously presented) The 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 1, wherein Y^1 is a single bond or an alkylene group of 1-6 carbons.

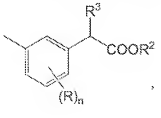
8. (previously presented) The 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 1, wherein R^1 is hydrogen atom, an alkoxycarbonyl group, hydroxy group, or an alkoxy group.

9. (previously presented) The 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 1, wherein a group shown by the formula (2) in the formula (1):

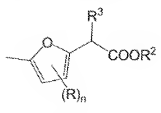


(2)

(wherein ring A, R, n, Y^3 and R^2 have the same meaning as in claim 1)
is a group shown by the formula (3) or the formula (4):



(3)



(4)

(wherein R, n and R^2 have the same meaning as in claim 1, and R^3 is hydrogen atom or an alkyl group).

10. (Original) The 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 9, wherein R^2 is methyl group or an alkyl group of 2-6 carbons substituted by a dialkylamino group or a cyclic amino group.

11. (Original) The 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 9 or 10, wherein R^3 is hydrogen atom.

12. (previously presented) A pharmaceutical composition comprising the 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 1 as an active ingredient.

13. (previously presented) An composition comprising the 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 1as an active ingredient, wherein said composition has immuno-modulatory activity.

14. (previously presented) A composition comprising the 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 1 as an active ingredient, wherein said composition has antiviral, anticancer or anti-allergy activity.

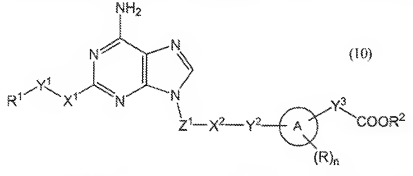
15. (previously presented) A composition comprising the 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 1 as an active ingredient, wherein said composition is formulated for topical administration.

16-18. (canceled)

19. (previously presented) A method for modulating immune response which comprises administering to a patient, an effective amount of the 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 1.

20. (previously presented) A method for treating or preventing viral diseases, cancers and allergic diseases which comprises administering to a patient, an effective amount of the 8-oxoadenine compound or its pharmaceutically acceptable salt according to claim 1.

21. (previously presented) A process for preparing the 8-oxoadenine compound according to claim 1 which comprises brominating a compound shown by the formula (10):

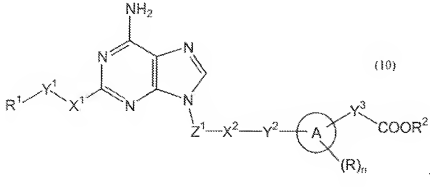


(10)

wherein ring A, n, R, R^1, R^2, X^1, X^2, Y^1, Y^2, Y^3 and Z^1 are the same defined in the claim 1,

reacting the resultant of the bromination with a metal alkoxide and then hydrolyzing, or hydrolyzing the resultant of the bromination.

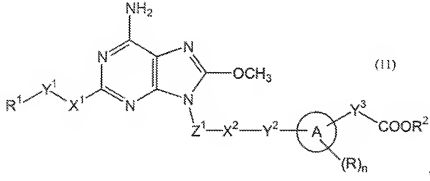
22. (Original) A compound shown by the formula (10):



(10)

wherein ring A, n, R, R^1, R^2, X^1, X^2, Y^1, Y^2, Y^3 and Z^1 are the same defined in the claim 1.

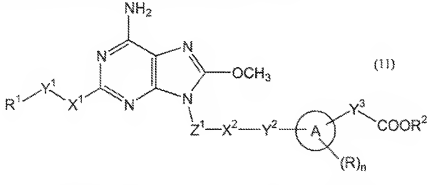
23. (previously presented) A process for preparing the 8-oxoadenine compound according to claim 1 which comprises deprotecting a compound shown by the formula (11):



(11)

wherein ring A, n, R, R^1, R^2, X^1, X^2, Y^1, Y^2, Y^3 and Z^1 are the same defined in the claim 1.

24. (Original) A compound shown by the formula (11):



(11)

wherein ring A, n, R, R^1, R^2, X^1, X^2, Y^1, Y^2, Y^3 and Z^1 are the same defined in the claim 1.

25. (Currently amended) A compound or a pharmaceutically acceptable salt thereof selected from the group consisting of the following compounds:

2-Butoxy-8-oxo-9-[2-(3-methoxycarbonylphenoxy)ethyl]adenine,
2-Butoxy-8-oxo-9-[2-(3-methoxycarbonylmethylphenoxy)ethyl]adenine,
2-Butoxy-8-oxo-9-[2-(2-methoxycarbonylphenoxy)ethyl]adenine,
2-Butoxy-8-oxo-9-[2-(2-methoxycarbonylmethylphenoxy)ethyl]adenine,
2-Butoxy-8-oxo-9-[2-(4-methoxycarbonylphenoxy)ethyl]adenine,
2-Butoxy-8-oxo-9-[2-(4-methoxycarbonylmethylphenoxy)ethyl]adenine,
2-Butoxy-8-oxo-9-{2-[4-(2-methoxycarbonylethyl)phenoxy]ethyl}adenine,
2-Butoxy-8-oxo-9-[4-(3-methoxycarbonylbenzenesulfonamide)butyl]adenine,
2-Butoxy-8-oxo-9-[4-(3-methoxycarbonylmethylbenzenesulfonamide)butyl]adenine,
2-Butoxy-8-oxo-9-[4-(3-methoxycarbonylphenylaminocarbonylamino)butyl]adenine,
2-Butoxy-8-oxo-9-[4-(3-methoxycarbonylmethylphenylaminocarbonylamino)butyl]adenine,
Methyl [3-({[2-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)ethyl]amino}methyl)phenyl]acetate,
[3-({[2-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)ethyl]amino}methyl)phenyl]acetic acid,
Methyl 3-({[3-(6-mino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)propyl]amino}methyl)benzoate,
3-({[3-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)propyl]amino}methyl)benzoic acid,
Methyl 4-({[3-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)propyl]amino}methyl)benzoate,
4-({[3-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)propyl]amino}methyl)benzoic acid,
Methyl (3-{{[3-(6-amino-2-butoxy-8-oxo-9H-purin-9-yl)propyl](2-morpholin-4-ylethyl)amino]methyl}phenyl)acetate,
Methyl [3-({[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl]amino}methyl)phenyl]acetate,
Ethyl 2-[2-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)ethoxy]benzoate,
3-(Dimethylamino)propyl 2-[2-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-

yl)ethoxy]benzoate,

Methyl 3-[4-({[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl]amino}sulfonyl)phenyl]propanoate,

3-[4-({[4-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl]amino}sulfonyl)phenyl]propanoic acid,

Methyl (3-{[[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl](2-pyrrolidin-1-ylethyl)amino]sulfonyl}phenyl)acetate,

(3-{[[4-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl](2-pyrrolidin-1-ylethyl)amino]sulfonyl}phenyl)acetic acid,

Methyl (3-{[[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl](2-methoxyethyl)amino]sulfonyl}phenyl)acetate,

(3-{[[4-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl](2-methoxyethyl)amino]sulfonyl}phenyl)acetic acid,

Methyl (3-{[[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl](methyl)amino]sulfonyl}phenyl)acetate,

(3-{[[4-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl](methyl)amino]sulfonyl}phenyl)acetic acid,

Methyl [3-({[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl][3-(dimethylamino)-2,2-dimethylpropyl]amino}sulfonyl)phenyl]acetate,

[3-({[4-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl][3-(dimethylamino)-2,2-dimethylpropyl]amino}sulfonyl)phenyl]acetic acid,

Methyl [3-({[3-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)propyl]amino}sulfonyl)phenyl]acetate,

Methyl (3-{[[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl](2-hydroxy-2-methylpropyl)amino]sulfonyl}phenyl)acetate,

(3-{[[4-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl](2-hydroxy-2-methylpropyl)amino]sulfonyl}phenyl)acetic acid,

Methyl [3-({[2-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)ethyl]amino}sulfonyl)phenyl]acetate,

Methyl [3-({[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl][(2R)-2,3-dihydroxypropyl]amino}sulfonyl)phenyl]acetate,

[3-({[4-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl][(2R)-2,3-dihydroxypropyl]amino}sulfonyl)phenyl]acetic acid,

Methyl 3-({[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl][3-(dimethylamino)-2,2-dimethylpropyl]amino}sulfonyl)benzoate,

3-({[4-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl][3-(dimethylamino)-2,2-dimethylpropyl]amino}sulfonyl)benzoic acid,

Methyl (3-{[[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl](3-morpholin-4-ylpropyl)amino]methyl}phenyl)acetate,

(3-{[[4-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl](3-morpholin-4-ylpropyl)amino]methyl}phenyl)acetic acid,

Methyl [3-({[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl][3-(dimethylamino)-2,2-dimethylpropyl]amino}methyl)phenyl]acetate,

[3-({[4-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl][3-(dimethylamino)-2,2-dimethylpropyl]amino}methyl)phenyl]acetic acid,

Methyl [3-({[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl][3-(2-oxopyrrolidin-1-yl)propyl]amino}methyl)phenyl]acetate,

[3-({[4-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl][3-(2-oxopyrrolidin-1-yl)propyl]amino}methyl)phenyl]acetic acid,

Methyl (3-{[[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl](2-morpholin-4-ylethyl)amino]methyl}phenyl)acetate,

(3-{[[4-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl](2-morpholin-4-ylethyl)amino]methyl}phenyl)acetic acid,

Methyl (3-{[[3-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)propyl](3-morpholin-4-ylpropyl)amino]methyl}phenyl)acetate,

Methyl [3-({[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl][2-(1H-tetrazol-5-yl)ethyl]amino}methyl)phenyl]acetate,

Methyl (3-{[2-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-

yl)ethyl]thio}phenyl)acetate,

(3-{[2-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)ethyl]thio}phenyl)acetic acid,

Methyl (3-{[2-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)ethyl]amino}phenyl)acetate,

Methyl (3-{[3-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)propyl]amino}phenyl)acetate,

(3-{[3-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)propyl]amino}phenyl)acetic acid,

Methyl [3-({[3-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)propyl]amino}methyl)phenyl]acetate,

([3-({[3-(6-Amino-2-butoxy-8-methoxy-9H-purin-9-yl)propyl]amino}methyl)phenyl]acetic acid,

Methyl (3-{[[2-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)ethyl](2-methoxyethyl)amino]methyl}phenyl)acetate,

(3-{[[2-(6-Amino-2-butoxy-8-methoxy-9H-purin-9-yl)ethyl](2-methoxyethyl)amino]methyl}phenyl)acetic acid,

Methyl (3-{[2-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)ethyl]sulfonyl}phenyl)acetate,

Methyl (3-{[[2-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)ethyl](methyl)amino]methyl}phenyl)acetate,

(3-{[[2-(6-Amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)ethyl](methyl)amino]methyl}phenyl)acetic acid,

Methyl 4-[3-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)-2-hydroxypropoxy]benzoate,

Methyl (3-{[[2-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)ethyl](2-hydroxyethyl)amino]methyl}phenyl)acetate,

Methyl (3-{[[4-(6-amino-2-butoxy-8-oxo-7,8-dihydro-9H-purin-9-yl)butyl](2-hydroxyethyl)amino]methyl}phenyl)acetate,

2-Butoxy-8-oxo-9-[2-(3-hydroxycarbonylphenoxy)ethyl]adenine,

2-Butoxy-8-oxo-9-[2-(3-hydroxycarbonylmethylphenoxy)ethyl]adenine,

~~2-Butoxy-8-oxo-9-[2-(2-methoxycarbonylphenoxy)ethyl]adenine,~~ 2-Butoxy-8-oxo-9-[2-(2-hydorxycarbonylphenoxy)ethyl]adenine,

2-Butoxy-8-oxo-9-[2-(2-hydroxycarbonylmethylphenoxy)ethyl]adenine,

2-Butoxy-8-oxo-9-[2-(4-hydroxycarbonylphenoxy)ethyl]adenine,

~~2-Butoxy-8-oxo-9-[2-(4-methoxycarbonylmethylphenoxy)ethyl]adenine,~~ 2-Butoxy-8-oxo-9-[2-(4-hydroxycarbonylmethylphenoxy)ethyl]adenine,

2-Butoxy-8-oxo-9-{2-[4-(2-hydroxycarbonyolethyl)phenoxy]ethyl}adenine,

2-Butoxy-8-oxo-9-[4-(3-hydroxycarbonylbenzenesulfonamide)butyl]adenine,

2-Butoxy-8-oxo-9-[4-(3-hydroxycarbonylmethylbenzenesulfonamide)butyl]adenine,

2-Butoxy-8-oxo-9-[4-(3-hydroxycarbonylphenylaminocarbonylamino)butyl]adenine and

2-Butoxy-8-oxo-9-[4-(3-hydroxycarbonylmethylphenylaminocarbonylamino)butyl]adenine.